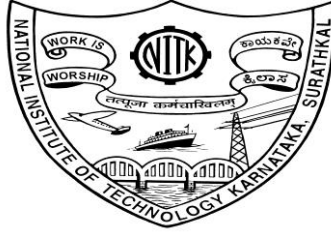


# NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL

DEPARTMENT OF MECHANICAL ENGINEERING  
 POST SRINIVASNAGAR, MANGALORE – 575 025 (D K)  
 Phone: (0824) 2474000. Fax: (0824) 2474033  
 E- mail: [info@nitk.ac.in](mailto:info@nitk.ac.in) Website: <http://www.nitk.ac.in>



## NOTICE INVITING QUOTATION

Notification. No.:NITK/MECH/DRDO/KRG/2011/2021-22

dated: 17/08/2022.

<b>Name of Goods</b>	Quadcopter
<b>Estimated Amount:</b>	31,620/-
<b>Time for Supply of item after release of Purchase order</b>	<b>Two Weeks</b>
<b>Document Download / Sale Start Date</b>	17/08/2022
<b>Clarification Start Date</b>	17/08/2022
<b>Clarification End Date</b>	24/08/2022
<b>Bid Submission Start Date</b>	17/08/2022
<b>Last Date for submission of bids</b>	29/08/2022 <b>before 3.00 PM</b>
<b>Bid Opening Date</b>	29/08/2022 <b>before 3.00 PM</b>
<b>Address for Submission of bids</b>	Dr. Vasudeva M Assistant Professor Department of Mechanical Engineering NITK, Surathkal,575025 9008889796



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**NOTICE INVITING QUOTATION (NIQ)**

The National Institute of Technology Karnataka, Surathkal (in short – NITK, Surathkal) is an Institute Of National Importance Under Ministry of Education Govt of India, imparting Technical Education and engaged in Research Activities. It is proposed to procure the items for the departmental academic/research activities.

Sealed Quotations as per the Price Schedule given in this NIQ are invited for the following items subject to the terms and conditions, from the reputed manufacturers or its authorised dealers so as to reach on or before scheduled date and time. The quotations in the firm's Business letter head should be address to the "Director, NITK, Surathkal". The envelope shall be superscribed with the Quotation Notification Number and the Name of the Goods for which quotation is submitted.

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**Sd/-  
HOD**

Note: Institute shall not be responsible for any postal delay about non-receipt /non-delivery of the bids or due to wrong addressee.

**SECTION-1**  
**Terms and Conditions**

1. The rates should be quoted for preferably FOR destination from supply within India.
2. The bidder shall indicate the excise duty exemption for the goods if applicable.
3. The rate quoted should be on unit basis. Taxes and other charges should be quoted separately, considering exemptions if any. The rate should be quoted in INR only
4. Rate quoted should be inclusive of Testing, commissioning and Installation of equipment and Training.
5. Payment: No advance payment will be made. Payment will be made only after the supply of the item in good and satisfactory condition and receipt of performance security by supplier.
6. Guarantee/Warranty period should be specified for the complete period should be specified in section 3 of this tender document.
7. Period requirement for the supply and installation of item should be specified in section 3 of this tender document.
8. In case of dispute, the matter will be subject to Mangalore Jurisdiction only.

**SECTION-2**  
**SCHEDULE OF REQUIREMENTS, SPECIFICATIONS AND ALLIED DETAILS**  
[ To be filled up by the Department / Centre of NITK, Surathkal ]

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Item(s) Name to be Procured	: Quadcopter
Brief Specifications of the Item(s) (Attach Additional Sheet if necessary)	: Additional Sheet Attached
Quantity	: 01
Any other details / requirement	: No
Warranty Period required	: 01 Years
Delivery Schedule expected after placement of Purchase order (in Weeks)	: 02 Weeks

**SECTION 3**  
**PRICE SCHEDULE**

[ To be used by the bidder for submission of the quotation]

- 
1. Item Name :
  2. Specifications  
(Conforming to Schedule of requirements  
Enclose additional sheets if necessary) :
  3. Currency and Unit Price :
  4. Quantity :
  5. Item Cost (Sl No. 3 \* Sl. No. 4 ) :
  6. Taxes and Other Charges :  
(i) Specify the type of taxes and duties  
in percentages and also in figures.  
(ii) Specify Other Charges in figures.
  7. **Warranty Period** :  
**(Conforming to the Schedule of requirements)**
  8. Delivery Schedule :  
(Conforming to the Schedule of requirements)
  9. Name and address of the Firm for  
placing purchase order :
  10. Name and address of Indian authorized  
agent ( in case of imports only) :

**Signature of the Bidder:** \_\_\_\_\_

**Name and Designation:** \_\_\_\_\_

**Business Address** : \_\_\_\_\_

\_\_\_\_\_

**Place:**

**Date:**

**Seal of the Bidder's Firm**

**SECTION 4**  
**CONTRACT FORM**

[ To be provided by the bidder in the business letter head]

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1. (Name of the Supplier's Firm) hereby abide by the delivery schedule mentioned in this document for supply of the items if the purchase order is awarded.
2. The item will be supplied conforming to the specifications stated in this document without any defect and deviations.
3. Warranty will be given for the period mentioned in this document and service will be rendered to the satisfaction of NITK, Surathkal during this period.

**Signature of the Bidder:** \_\_\_\_\_

**Name** : \_\_\_\_\_

**Business Address** : \_\_\_\_\_

\_\_\_\_\_

**Place :**

**Date :**

**Seal of the Bidder's Firm**

## Quadcopter Technical Specifications

- 1 x Q450 Quadcopter Frame – PCB Version Frame Kit with Integrated PCB
- 2 x EMAX MT2213 935KV BLDC Motor CCW With Prop1045 Combo (Original)
- 2 x EMAX MT2213 935KV BLDC Motor CW With Prop1045 Combo (Original)
- 4 x Emax BLHeli Series 30A ESC with Oneshot (Original)
- 1 x Pixhawk PX4 Autopilot PIX 2.4.8 32 Bit Flight Controller
- 1 x Ublox NEO-M8N High Precision GPS Built-in Compass for APM, AMP2.6, APM 2.8 and Pixhawk 2.4.6, Pixhawk 2.4.8
- 1 x UNIVERSAL GPS FOLDING ANTENNA BASE SET/BLACK
- 1 x Flysky FS-i6X 2.4GHz 10CH AFHDS 2A RC Transmitter With FS-iA10B 2.4GHz 10CH Receiver
- 1 x Orange 5200mAh 3S 40C/80C Lithium polymer battery Pack (LiPo)
- 1 x Lipo Voltage Checker 1-8S
- 1 x XT60 Male w/ 12AWG Silicon Wire 10cm (1pcs/bag)
- 4 x SafeConnect Flat 15CM 22AWG Servo Lead Extension (Futaba) Cable

<b>Specification and Features:</b>		
<b>Q450 Quadcopter Frame – PCB Version Frame Kit with Integrated PCB No.</b>		<b>Qty: 01</b>
1	Materials:	glass fiber + polyamide-nylon
2	Frame Weight:	Not more than 280g.
3	Height:	Not more than 55mm
4	Arm	Colored arms for orientation to keep flying in the right direction. Power distribution board included in this item (inbuilt PCB). Pre-threaded brass sleeves for all frame bolts. Large mounting tabs on main frame bottom plate for easy camera mounting.
<b>935KV BLDC Motor CCW With Prop1045 Combo (Original)</b>		<b>Qty: 02 No.</b>
	Item Name:	935KV brushless motor
	KV:	920 KV
	ESC:	18A
	Thrust:	860G
	Propeller:	8"-10"
	Diameter:	28 mm
	Length:	39.5 mm
	Weight:	53 g
<b>935KV BLDC Motor CW With Prop1045 Combo (Original)</b>		<b>Qty: 02 No.</b>
	Item Name:	935KV brushless motor
	KV:	920 KV
	ESC:	18A
	Thrust:	860G
	Propeller:	8"-10"
	Diameter:	28 mm
	Length:	39.5 mm

	Weight:	53 g
<b>BLHeli Series 30A ESC with Oneshot (Original)</b>		<b>Qty: 04 No.</b>
	Constant Current :	30A
	Burst Current:	40A for 10 sec
	Battery required :	2-4 S (Orange battery)
	BEC Voltage :	5V / 2A
	Size :	52 x 26 x 7 mm
	Weight:	28 g
<b>Pixhawk PX4 Autopilot PIX 2.4.8 32 Bit Flight Controller</b>		<b>Qty: 01 No.</b>
	Processor	32bit STM32F427 Cortex M4 core with FPU. 168 MHz. 128 KB RAM. 2 MB Flash. 32-bit STM32F103 failsafe co-processor.
	Sensors	ST Micro L3GD20H 16 bit gyroscope. ST Micro X4HBA 303H 14 bit accelerometer/magnetometer. Invensense MPU 6000 3-axis accelerometer/gyroscope. MEAS MS5607 barometer.
	Interfaces	5x UART (serial ports), one high-power capable, 2x with HW flow control. 2x CAN (one with an internal 3.3V transceiver, one on expansion connector). Spektrum DSM / DSM2 / DSM-X® Satellite compatible input. Futaba S.BUS® compatible input and output. PPM sum signal input. RSSI (PWM or voltage) input.
<b>Ublox NEO-M8N High Precision GPS Built-in Compass for APM, AMP2.6, APM 2.8 and Pixhawk 2.4.6, Pixhawk 2.4.8</b>		<b>Qty: 01 No.</b>
		Navigation update rate up to 10 Hz Rechargeable 3V lithium backup battery Low noise 3.3V regulator Power and fix indicator LEDs Receiver type 72-channel u-box M8 engine GPS/QZSS L1 C/A, GLONASS L10F, BeiDou B1 SBAS L1 C/A: WAAS, EGNOS, MSAS Galileo-ready E1B/C (NEO-M8N) Nav. update rate1 Single GNSS: up to 18 HZ Concurrent GNSS: up to 10 Hz Position accuracy2 2.0 m CEP Acquisition2 Cold start: 26 s Aided starts: 2 s Reacquisition: 1.5 s
<b>UNIVERSAL GPS FOLDING ANTENNA BASE SET/BLACK</b>		
<b>Qty: 01 No.</b>		



Material:	CNC Aluminum alloy, carbon glass fiber rod
Mounting rod diameter:	4mm
length of rod:	14 cm
GPS plate diameter:	40 mm
Base plate diameter:	35 mm
Mounting hole spacing:	16-35mm
Weight:	20g

**Flysky FS-i6X 2.4GHz 10CH AFHDS 2A RC Transmitter With FS-iA10B 2.4GHz 10CH Receiver Qty: 01 No.**

Channel :	6-10 (Default 6)
Model Type :	Fixed-Wing/Glider/Helicopter
RF Range :	2.408-2.475GHz
RF Power :	< 20dBm
RF Channel :	135
Bandwidth :	500KHz
2.4GHz System :	AFHDS 2A / AFDHS
Modulation Type :	GFSK
Stick Resolution :	4096
Low Voltage Warning :	< 4.2V
DSC port :	PS/2 Port PPM
Antenna Length :	26mm (Dual Antenna)
Weight :	392g
Power	6V DC 1.5A

**Orange 5200mAh 3S 40C/80C Lithium polymer battery Pack (LiPo) Qty: 01 No.**

Model No:	Orange 5200mAh 40C 3S1P
Capacity :	5200mAh
Weight :	360.0g
Voltage :	11.1V
Dimensions :	28x44x137(mm)
Max Continuous Discharge :	40C(208.0A)
Balance Plug :	JST-XH
Max Burst Discharge :	80C(416.0A)
Discharge Plug :	XT-60
Charge Rate :	1-3C Recommended, 5C Max

**Lipo Voltage Checker 1-8S Qty: 01 No.**

Input:	1-8S
Battery type:	Lipo/LiFe/Li-ion
Cell Voltage Display Range:	0.5v-4.5v
Total Voltage Display Range:	3.7-36v
Alarm set values:	Off or 2.7-3.8v

<b>XT60 Male w/ 14AWG Silicon Wire 10cm (1pcs/bag)</b>		<b>Qty:</b>
<b>01 No.</b>		
	Connector Type:	XT60 Male
	Material of Connector:	High-Temp nylon
	Length:	10 cm.
<b>SafeConnect Flat 15CM 22AWG Servo Lead Extension (Futaba) Cable</b>		<b>Qty:</b>
<b>02 No.</b>		
	<p>High-Quality cable  One male and one female connector.  Flat 15 cm Servo Lead Extention (Futaba)  Quality wire and connectors used.  Great for larger planes with servos that experience high loads.</p>	